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A Correlation of

enVision® Mathematics

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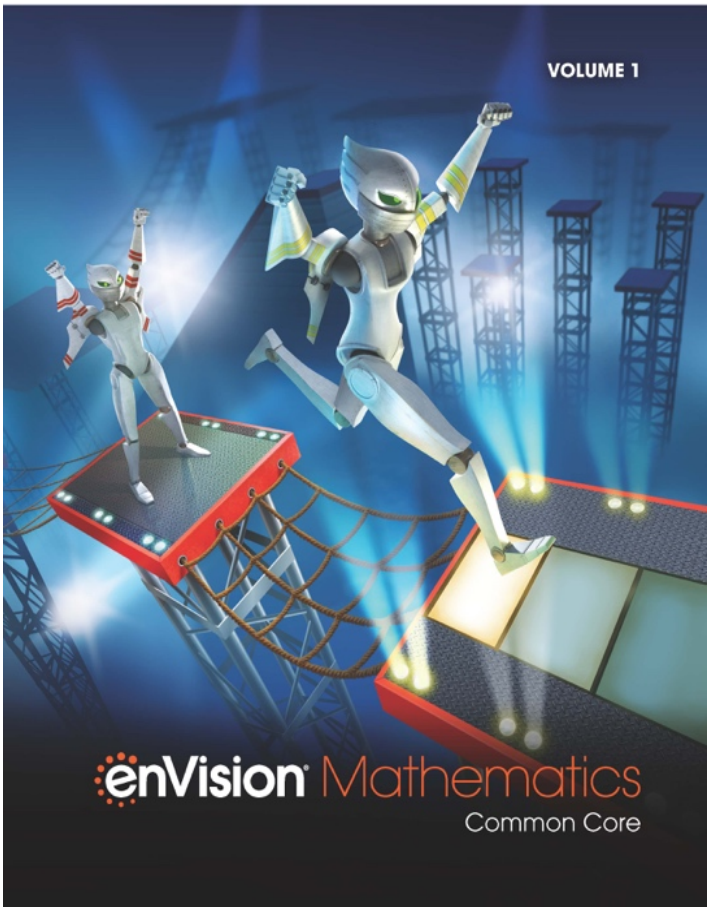

to the

Arkansas Mathematics Standards 2016
Grade 8

Prepared by Savvas Learning Company, formerly Pearson K12 Learning

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To the Arkansas Mathematics Standards 2016

Introduction

The new enVision® Mathematics ©2021 is the latest offering of the nationally recognized Grades K-12 series, created for print, digital, and blended instruction. Problem-Based Learning connects with Visual Learning to deep conceptual understanding. Interactive multimedia experiences engage learners in student choice and solving rich problems. Extensive customization and differentiation options empower every teacher and student.

UNDERSTANDING
A simple lesson design provides a clear, intentional pathway. Starting on a firm foundation of conceptual understanding, students can connect and apply math ideas in amazing ways. High-interest math projects invite all students to be active participants.

A simple lesson design provides a clear, intentional pathway.

STEP 1 Problem-Based Learning
STEP 2 Visual Learning
STEP 3 Assess and Differentiate

ASSESSMENT
The enVision Assessment Suite offers options to move students toward mastery of state standards while driving instructional differentiation.

DIAGNOSTIC Assessment
Reading Test, Diagnostic Test (Math Diagnosis and Intervention System), Review What You Know
FORMATIVE Assessment
SCOUT Observational Assessment used during Solve & Share, Do You Understand? And Convince Me! Guide Practice, Quick Check
SUMMATIVE Assessment
Topic Assessments, Topic Performance Assessments, Examview Test Generator, Fluency Assessments, Cumulative/Benchmarks Assessments, Progress Monitoring Assessments

INSTRUCTIONAL SUPPORT
Gain a new perspective on your teaching with embedded strategies, methods, and a wide range of Professional Development opportunities in print and digital formats.

Ideas, Inspiration, and Teaching Methods
Math background for every Topic and Lesson serves as an easy-to-access math methods course.

Make every lesson perfect for you. Access all digital content, assessments, and management tools at PearsonRealize.com.

Kids See the Math. Teachers See Results.

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Arkansas Mathematics Standards 2016 Grade 8	enVision Mathematics, ©2021 Grade 8
The Number System	
Know that there are numbers that are not rational, and approximate them by rational numbers	
AR.Math.Content.8.NS.A.1 Know that numbers that are not rational are called irrational: • Understand that every number has a decimal expansion For example: 2=2.00… • Write a fraction a/b as a repeating decimal • Write a repeating decimal as a fraction	**SE:** 9-14, 15-20, 75-80 **TE:** 9A-14B, 15A-20B, 75-80
AR.Math.Content.8.NS.A.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π2). For example: By truncating the decimal expansion of √2, show that √2 is between 1 and 2, then between 1.4 and 1.5, and explain how to continue on to get better approximations.	**SE:** 21-26, 75-80 **TE:** 21A-26B, 75-80
Expressions and Equations	
Work with radicals and integer exponents	
AR.Math.Content.8.EE.A.1 Know and apply the properties of integer exponents to generate equivalent numerical expressions using product, quotient, power to a power, or expanded form	**SE:** 41-46, 47-52, 75-80 **TE:** 41A-46B, 47A-52B, 75-80
AR.Math.Content.8.EE.A.2 Use square root and cube root symbols to represent solutions to equations: • Use square root symbols to represent solutions to equations of the form x^2= p, where p is a positive rational number Evaluate square roots of small perfect squares. • Use cube root symbols to represent solutions to equations of the form x^3= p, where p is a rational number. Evaluate square roots and cube roots of small perfect cubes	**SE:** 27-32, 33-38, 75-80 **TE:** 27A-32B, 33A-38B, 75-80
AR.Math.Content.8.EE.A.3 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. For example: Estimate the population of the United States as 3 times 10^8 and the population of the world as 7 times 10^9, and determine that the world population is more than 20 times larger.	**SE:** 53-58, 75-80 **TE:** 53A-58B, 75-80

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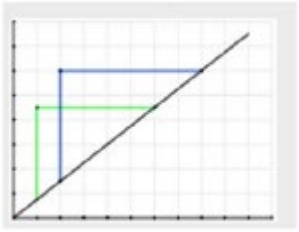
AR.Math.Content.8.EE.A.4 • Perform operations with numbers expressed in scientific notation, including problems where both standard form and scientific notation are used • Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading) • Interpret scientific notation that has been generated by technology	**SE:** 59-64, 69-74, 75-80 **TE:** 59A-64B, 69A-74B, 75-80
Understand the connections between proportional relationships, lines, and linear equations	
AR.Math.Content.8.EE.B.5 • Graph proportional relationships, interpreting the unit rate as the slope of the graph. • Compare two different proportional relationships represented in different ways (graphs, tables, equations). For example: Compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.	**SE:** 121-126, 151-156 **TE:** 121A-126B, 151-156
AR.Math.Content.8.EE.B.6 • Using a non-vertical or non-horizontal line, show why the slope m is the same between any two distinct points by creating similar triangles • Write the equation y=mx + b for a line through the origin • Be able to write the equation y = mx + b for a line intercepting the vertical axis at b 	**SE:** 127-132, 133-138, 139-144, 145-150, 151-156 **TE:** 127A-132B, 133A-138B, 139A-144B, 145A-150B, 151-156

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Analyze and solve linear equations and pairs of simultaneous linear equations	
AR.Math.Content.8.EE.C.7 Solve linear equations in one variable: • Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions Note: Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form x = a, a = a, or a = b results (where a and b are different numbers) • Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms Note: Students should solve equations with variables on both sides.	**SE:** 89-94, 95-100, 101-106, 107-114, 151-156 **TE:** 89A-94B, 95A-100B, 101A-106B, 107A-114B, 151-156
AR.Math.Content.8.EE.C.8 Analyze and solve pairs of simultaneous linear equations: • Find solutions to a system of two linear equations in two variables so they correspond to points of intersection of their graphs • Solve systems of equations in two variables algebraically using simple substitution and by inspection (e.g., 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot simultaneously be 5 and 6) • Solve real-world mathematical problems by utilizing and creating two linear equations in two variables. For example: Given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.	**SE:** 267-272, 273-278, 281-286, 287-292, 297-300 **TE:** 267A-272B, 273A-273B, 281A-286B, 287A-292B, 297-300
Functions	
Define, evaluate, and compare functions	
AR.Math.Content.8.F.A.1 • Understand that a function is a rule that assigns to each input exactly one output • The graph of a function is the set of ordered pairs consisting of an input and the corresponding output. Note: An informal discussion of function notation is needed; however, student assessment is not required.	**SE:** 165-170, 171-176, 207-210 **TE:** 165A-170B, 171A-176B, 207-210
AR.Math.Content.8.F.A.2 Compare properties (e.g., y-intercept/initial value, slope/rate of change) of two functions each represented in a different way (e.g., algebraically, graphically, numerically in tables, or by verbal descriptions). For example: Given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.	**SE:** 177-182, 189-194, 207-210 **TE:** 177A-182B, 189A-194B, 207-210

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AR.Math.Content.8.F.A.3 Identify the unique characteristics of functions (e.g., linear, quadratic, and exponential) by comparing their graphs, equations, and input/output tables	**SE:** 177-182, 207-210, 225-230, 231-236, 255-258 **TE:** 177A-182B, 207-210, 225A-230B, 231A-236B, 255-258
Functions	
Use functions to model relationships between quantities	
AR.Math.Content.8.F.B.4 Construct a function to model a linear relationship between two quantities: • Determine the rate of change and initial value of the function from: o a verbal description of a relationship o two (x, y) values o a table o a graph • Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values	**SE:** 189-194, 207-210, 225-230, 231-236, 255-258 **TE:** 189A-194B, 207-210, 225A-230B, 231A-236B, 255-258
AR.Math.Content.8.F.B.5 • Describe the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear) • Sketch a graph that exhibits the features of a function that has been described verbally	**SE:** 195-200, 201-206, 207-210 **TE:** 195A-200B, 201A-206B, 207-210
Geometry	
Understand congruence and similarity using physical models, transparencies, or geometry software	
AR.Math.Content.8.G.A.1 Verify experimentally the properties of rotations, reflections, and translations: • Lines are taken to lines, and line segments to line segments of the same length • Angles are taken to angles of the same measure • Parallel lines are taken to parallel lines	**SE:** 309-314, 315-320, 321-326, 327-332, 377-382 **TE:** 309A-314B, 315A-320B, 321A-326B, 327A-332B, 377-382
AR.Math.Content.8.G.A.2 • Understand that a two-dimensional figure is congruent to another if the second can be obtained from the first by a sequence of rotations, reflections, and translations • Given two congruent figures, describe a sequence that exhibits the congruence between them	**SE:** 337-342, 377-382 **TE:** 337A-342B, 377-382
AR.Math.Content.8.G.A.3 Given a two-dimensional figure on a coordinate plane, identify and describe the effect (rule or new coordinates) of a transformation (dilation, translation, rotation, and reflection): • Image to pre-image • Pre-image to image	**SE:** 309-314, 315-320, 321-326, 327-332, 337-342, 345-350, 351-356, 377-382 **TE:** 309A-314B, 315A-320B, 321A-326B, 327A-332B, 337A-342B, 345A-350B, 351A-356B, 377-382

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AR.Math.Content.8.G.A.4 • Understand that a two-dimensional figure is similar to another if the second can be obtained from the first by a sequence of rotations, reflections, translations, and dilations • Given two similar two-dimensional figures, describe a sequence that exhibits the similarity between them	**SE:** 345-350, 351-356, 377-382 **TE:** 345A-350B, 351A-356B, 377-382
AR.Math.Content.8.G.A.5 Use informal arguments to establish facts about: • The angle sum and exterior angle of triangles For example: Arrange three copies of the same triangle so that the sum of the three angles appears to form a line. • The angles created when parallel lines are cut by a transversal. For example: Give an argument in terms of translations about the angle relationships. • The angle-angle criterion for similarity of triangles	**SE:** 357-364, 365-370, 371-376, 377-382 **TE:** 357A-364B, 365A-370B, 371A-376B, 377-382
Geometry	
Understand and apply the Pythagorean Theorem	
AR.Math.Content.8.G.B.6 Model or explain an informal proof of the Pythagorean Theorem and its converse	**SE:** 395-400, 401-406, 421-424 **TE:** 395A-400B, 401A-406B, 421-424
AR.Math.Content.8.G.B.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions	**SE:** 395-400, 401-406, 409-414, 421-424 **TE:** 395A-400B, 401A-406B, 409A-414B, 421-424
AR.Math.Content.8.G.B.8 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system	**SE:** 415-420, 421-424 **TE:** 415A-420B, 421-424

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Solve real-world and mathematical problems involving volume of cylinders, cones, and spheres	
AR.Math.Content.8.G.C.9 Develop and know the formulas for the volumes and surface areas of cones, cylinders, and spheres and use them to solve real-world and mathematical problems	**SE:** 433-438, 439-444, 447-452, 453-458, 463-466 **TE:** 433A-438B, 439A-444B, 447A-452B, 453A-458B, 463-466
Statistics and Probability	
Investigate patterns of association in bivariate data	
AR.Math.Content.8.SP.A.1 • Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities • Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association	**SE:** 219-224, 255-258 **TE:** 219A-224B, 255-258
AR.Math.Content.8.SP.A.2 • Know that straight lines are widely used to model relationships between two quantitative variables • For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line. For example: Identify weak, strong, or no correlation.	**SE:** 225-230, 255-258 **TE:** 225A-230B, 255-258
AR.Math.Content.8.SP.A.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercepts For example: In a linear model for a biology experiment, interpret a slope of 1.5 cm/hr as meaning that an additional hour of sunlight each day is associated with an additional 1.5 cm in mature plant height.	**SE:** 231-236, 255-258 **TE:** 231A-236B, 255-258

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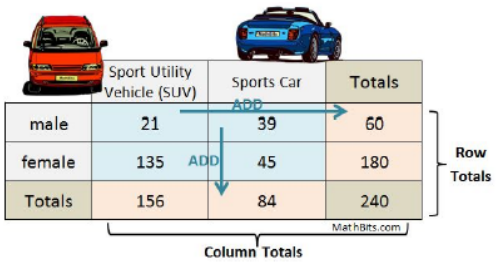
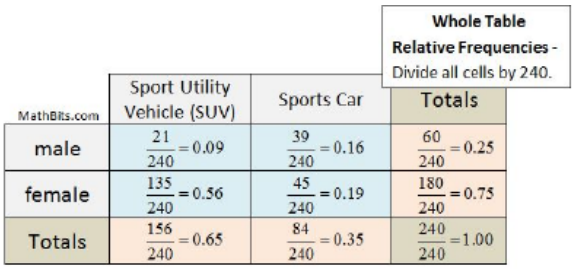
AR.Math.Content.8.SP.A.4 • Understand that patterns of association can also be seen in bivariate categorical data by displaying frequencies and relative frequencies in a two-way table • Construct and interpret a two-way table on two categorical variables collected from the same subjects • Use relative frequencies calculated for rows or columns to describe possible association between the two variables Example: Two-Way Frequency Table http://mathbitsnotebook.com/Algebra1/StatisticsReg/ST2TwoWayTable.html  Example: Two-Way Relative Frequency Table  For example: Students might be asked to interpret from the tables above, if they saw an SUV in the parking lot, would it be more likely to belong to a male or female?	**SE:** 239-244, 245-250, 255-258 **TE:** 239A-244B, 245A-250B, 255-258